



Docket No.: 243741US2DIV

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COMMISSIONER FOR PATENTS
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RE: Application Serial No.: 10/682,189

Applicants: Yasushi NAKAZATO, et al.

Filing Date: October 10, 2003

For: IMAGE FORMING APPARATUS

Group Art Unit: 2852

Examiner:

SIR:

Attached hereto for filing are the following papers:

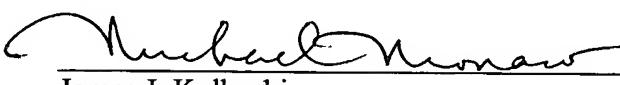
PETITION TO MAKE SPECIAL UNDER M.P.E.P. § 708.02(VIII)

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Respectfully submitted,

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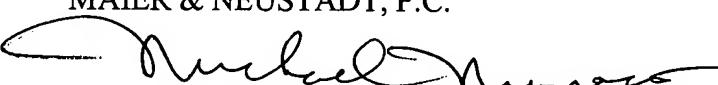
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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
YASUSHI NAKAZATO, ET AL. : EXAMINER:
SERIAL NO: 10/682,189 :
FILED: OCTOBER 10, 2003 : GROUP ART UNIT: 2852
FOR: IMAGE FORMING APPARATUS :

PETITION TO MAKE SPECIAL UNDER M.P.E.P. § 708.02(VIII)

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

I. Basis for the Petition

Pursuant to MPEP § 708.02(VIII) (8th ed. 2001), Applicants hereby petition for a special status for this application.

II. Requirements for Granting Special Status

MPEP § 708.02(VIII) provides five requirements for a grant of special status. The following subsections show that each of these five requirements is met.

A. Submit Petition and Fee: § 708.02(VIII)(A)

This petition is accompanied by the fee set forth in 37 CFR § 1.17(h).

B. Agree to an Election Without Traverse: § 708.02(VIII)(B)

Applicants submit that all claims as amended by the preliminary amendment are directed to a single, patentable invention. Moreover, the apparatus and system claims are sufficiently analogous to the method claims that the search and examination of the entire application would not place a serious burden on the examiner, as required by MPEP § 803.

However, should the Office determine that all the claims presented are not directed to a single invention, Applicants agree to elect the largest group of claims that includes independent Claims 43, 52, 61, and 70, and all claims dependent therefrom.

C. State that a Pre-examination Search Was Made:

§ 708.02(VIII)(C)

The present application is a divisional of now allowed Application Serial No. 10/419,902, which is a divisional of the application that matured into U.S. Patent 6,580,887, which is a continuation of the application that matured into U.S. Patent 6,400,917, which is a divisional of the application that matured into U.S. Patent 6,236,820. Each of the references cited in the prosecution of these allowed or issued patents were cited in the original Information Disclosure Sheet (IDS) filed with this application.

In addition, Applicants have conducted a search directed to the claims pending in the present application. This search was conducted at the United States Patent and Trademark Office for references having priority or publication dates no later than May 5, 1999, as found in the search files for the following subject matter classification areas:

CLASS	SUBCLASSES
347 – INCREMENTAL PRINTING OF SYMBOLIC INFORMATION	107, 110, 111, 112, 113, 118, 124, 126, 177, 178, 179
399 - ELECTROPHOTOGRAPHY	138, 152, 232, 245, 257, 263

Additionally, computer keyword text searches were performed within the Examiner Automated Search Tool/Web Based Examiner Search Tool (EAST/WEST) BRS database and patent image retrieval system for all the above noted classification areas, as well as, within the entire BRS database.

As a result of Applicants' supplemental search, the following additional United States patent references are cited:

PATENT NO.	INVENTOR	DESCRIPTION
6,647,227	Yokoi et al.	Discloses a state-of-the-art example of an image forming apparatus with a transfer mechanism 22 having a transfer belt 32 and plurality of image and a plurality of developing cartridges 21Y, 21M, 21C and 21K, arranged one above another.
6,677,973 6,512,533	Tajima et al.	Disclose state-of-the-art examples of an image forming apparatus including a transfer belt image bearing member 100, and a plurality of developing units 131, 132, 133, 134 arranged one above another, see Figure 9.

However, none of these references predate Applicants' claimed priority date of May 7, 1998.

Thus, no additional prior art references revealed by this search would appear to be anymore relevant or even as relevant to the patentability of the now pending claims as those prior art references previously cited during the prosecution of the parent patent applications.

Independent of these searches, Applicants have also discovered JP2000321930 (Hideaki) which may be relevant to the patentability of some of the claims now pending. This reference has been disclosed to the Examiner in a supplemental IDS.

D. Submit a Copy of the Most Relevant References:

§ 708.02(VIII)(D)

Since the present application is a divisional of now allowed Application Serial No. 10/426,871, all of the references considered in the parent application are deemed to be of record in the present application. Also, an original and a supplemental Information Disclosure Statement (IDS) have been submitted in association with this application. Accordingly, the references deemed most relevant to the present claims are of record.

E. Submit a Detailed Discussion of the References, Pointing Out How the Claimed Subject Matter is Patentable Over the References: § 708.02(VIII)(E)

Each of the independent claims includes features not taught or suggested by the references deemed most relevant to the claims.

Independent Claim 43 is directed to an image forming apparatus, comprising: a plurality of light generators; an image transfer mechanism; a plurality of image forming cartridges corresponding to the plurality of light generators, each image forming cartridge having a photosensitive drum having an exposure position and a transfer position, the exposure position facing a corresponding light generator and the transfer position substantially diametrically opposed to the exposure position; and a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another.

Independent Claim 51 is directed to a means-plus-function embodiment corresponding to Claim 43. Independent Claim 59 is directed to alternative embodiment, also reciting *inter alia*

“...an image forming cartridge...including at least one photoconductive element having an exposure position and a transfer position, the exposure position facing a corresponding optical writing device, and the transfer position substantially diametrically opposed to the exposure position,” and

“...a vertical stay disposed between the optical writing devices and the image forming cartridges;

a plurality of image forming cartridge supporting members corresponding to each of the image forming cartridges, and being attached to at least one of the vertical stay and the apparatus body; and

a plurality of optical writing device supporting members corresponding to each of the optical writing devices, and being attached to at least one of the vertical stay and the apparatus body.”

Below, as required by MPEP 708.02, each of the references deemed most relevant to the claims is discussed in light of the inventive feature believed most pertinent to the reference for the purpose of this petition.

Consistent with the search conducted by the Applicants, as well as references of record in this case, Applicants respectfully submit that the claims of the Application

patentably distinguish over all of the references of record. Reasons for the patentability being provided below.

Applicants' Claim 43 recites, *inter alia*, an image forming apparatus including:

“...a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another.”

By way of background, it is known to provide an image forming apparatus with a plurality of image forming cartridges removably mounted with respect to the apparatus in a vertical, stacked configuration. In this configuration, the removable cartridges must be positioned in a stable manner with respect to the apparatus body in order to avoid an instability in operation caused by the vibration of the cartridges during operation. Such vibration results in “banding,” which is expressed in an output image from the device due to the vibration of the imaging components therein.¹

U.S. Patent No. 5,848,329 (Aoyama et al., hereinafter Aoyama) discloses an image forming apparatus having a mounting/dismounting apparatus which enables the accurate placement of individual processing units. The apparatus includes a sheet-feed unit (1) for providing a paper sheet to the apparatus. A sheet provided from the sheet-feed unit is oriented in the horizontal position by a horizontal registration unit (2) and conveyed to a registration sensor (3).² This sheet is provided from the registration sensor by a conveying means (101) for sequentially conveying the sheet past image transfer points of process units (102). Once images have been provided to a sheet, a fixing unit (9) fixes the image on the sheet by applying heat and pressure to the sheet.

¹ Application at pages 1-2.

² Aoyama at column 8, lines 38-44; Fig. 4.

Vertically stacked process units are supported by support members (14a) and (14b) when the unit is mounted in the apparatus body. A positioning mechanism, including holes (16), and pin (317) is provided such that the pin of a process unit can be mated with the respective hole. Thus, the positioning mechanism positions the process unit relative to the support members in the vicinity of the shaft of the drum. Process units can therefore be accurately positioned relative to the apparatus body.³ In this way, an individual process unit can be supported by the apparatus body independently of the other process units such that only the desired process unit can be mounted and/or dismounted without the need to remove all of the units.

Aoyama does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does Aoyama disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

U.S. Patent No. 5,953,559 (Obu) discloses a device and method for forming full-color images to avoid excess toner build-up inside the device. The device includes four vertically stacked image-formation units (3a-3d) and a sheet-conveyor transfer unit (4).⁴ Each of the image formation units generates an image in a respective color by way of a liquid

³ Aoyama at column 9, lines 42-58.

⁴ Obu at column 4, lines 2-3.

development agent and includes optical drawing units (13) for providing light to create an electrostatic latent image upon a charge roller (12).⁵

Obu does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does Obu disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

U.S. Patent No. 6,191,801 (Hiraoka et al., hereinafter Hiraoka) discloses a color electrophotographic apparatus of a reduced dimension having image registration. The apparatus includes a flexible photo conductor or belt (100) for carrying a sheet to receive images from print stations (106-112). Laser beam scanners (122-128) are vertically stacked and provided for emitting laser beams (130-136) to scan the surface of the photoconductor in a direction perpendicular to the moving direction of the photoconductor as the laser beams are reflected by rotating polygon mirrors (150-156).⁶

Hiraoka does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does

⁵ Obu at Fig. 3

⁶ Hiraoka at column 10, lines 20-27; Fig. 5.

Hiraoka disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

U.S. Patent No. 6,249,305 (Miyamoto et al., hereinafter Miyamoto) discloses a color image forming apparatus for reducing a paper path for avoiding paper- jamming. The apparatus includes an image carrier cartridge (2) which includes a belt-shaped image carrier (1) for receiving image signals from a corresponding one of the developing sections (42-43, 45 and 47) which are vertically stacked interior to the apparatus. Exposure sections (25, 27, 29 and 31) form a latent image by the use of a laser beam incident to the belt-shaped image carrier. A laser beam reflected from a corresponding one of the exposure sections is reflected by movement of a polygon mirror (37), and conducts scanning exposure for the photoreceptor of the belt-shaped image carrier through a lens (39) and cylindrical lens (41).⁷

Miyamoto does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does Miyamoto disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

U.S. Patent No. 5,208,640 (Horie et al., hereinafter Horie) discloses an image recording apparatus for reducing the amount of required installation space. The apparatus includes vertically stacked record units (30) for providing a latent image to a sheet of a

⁷ Miyamoto at column 16, lines 3-32; Fig. 1.

conveyance system (60).⁸ As shown in more detail in Fig. 4, a recording unit includes a photosensitive drum (41), a charging unit (42) and a raster output scanner (43). The raster output scanner provides laser beams for deflection by a polygon mirror (43a) in the direction of a scan. The laser beams are applied via lenses (43b) and (43c) to an exposure position (E1) of the photosensitive drum.

Horie does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does Horie disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

U.S. Patent No. 5,752,137 (Haneda) discloses a multi-color forming apparatus having a plurality of detachable exposure devices for facilitating service of the apparatus. The apparatus includes a belt photoreceptor (10) wound around a drive roller (1), driven rollers (2) and (3), a tension roller (4) and a supporting member (50). The supporting member is provided between the drive roller and the driven roller to press the photoreceptor (10) for presentment to developing devices (13Y), (13M), (13C) and (13K); it is not a structural support or vertical stay as recited in Applicants' claims. The supporting member includes scanning holes (51Y), (51M), (51C) and (51K). Optical systems (12Y), (12M), (12C) and (12K) provide light beams to the developing devices such that electrostatic latent images of each developing device can be provided to the belt photoreceptor.

⁸ Horie at Fig. 3.

Haneda does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does Haneda disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

U.S. Patent No. 5,787,324 (Iwasaki) discloses an image forming apparatus having a plurality of vertically stacked and spaced image forming units. The apparatus includes scanners (3-6) for providing a light beam to a corresponding one of cartridges (7-10).⁹ The cartridges are vertically disposed in the apparatus and spacing is maintained between the cartridges by supporting members (11a-14a).¹⁰

Iwasaki does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does Iwasaki disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

⁹ Iwasaki at Fig. 1; column 4, lines 4-16.

¹⁰ Iwasaki at column 4, lines 39-43.

U.S. Patent No. 5,907,749 (Nomura et al., hereinafter Nomura) discloses a process cartridge for use with an image forming apparatus. The process cartridge includes an image bearing member (10) which cooperates with a developing device (11), a charger (12) and a cleaning device (13) for providing a latent image to a carrier medium.¹¹ Above the process cartridge, a short focus optical element array (24) is positioned for providing an exposure signal of an illumination lamp (23).

Nomura does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does Nomura disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

U.S. Patent No. 5,842,095 (Kitamura) discloses an image forming device employing multiple image forming units for reducing an overall size of the device. The device includes a plurality of image forming units (2) oriented along a copy material transport path (1) for providing light beams to a corresponding one of a transport copying means (5).¹² The specific positioning of the transport copying means relative to the image forming units and transport path is disclosed for achieving a greater compactness in design.

Kitamura does not disclose or suggest an image forming apparatus which includes a housing including respective slots corresponding to the light generators, the slots positioned

¹¹ Nomura at column 3, lines 36-56; Fig. 3.

¹² Kitamura at Fig. 1a; column 3, line 66 through column 4, line 13.

to allow light beams emitted from said light generators to pass therethrough onto the respective exposure positions, the housing configured to house the plurality of light generators one above another as recited in Applicants' Claims 43 and 51. Neither does Kitamura disclose or suggest the vertical stay, plurality of image forming cartridge supporting members, or plurality of optical writing device supporting members as recited in Applicants' Claim 59.

Applicants' independent Claim 64 is directed to an image forming cartridge corresponding to the image forming apparatus of Claims 43, 51, and 59. The image forming cartridge of Claim 64 comprises: a photosensitive drum having an exposure position and a transfer position, the exposure position arranged to face a corresponding light generator and the transfer position substantially diametrically opposed to the exposure position. The image forming cartridge is configured to be arranged above a second image forming cartridge having a second exposure position and a second transfer position, the second exposure position arranged to face a corresponding second light generator and the second transfer position substantially diametrically opposed to the second exposure position.

JP2000321930 (Hideaki) discloses a process cartridge whose exposing position and developing position are located 180 degrees apart from each other.¹³ Hideaki does not disclose or suggest, however, such an image forming cartridge configured to be arranged above a second, similarly configured image forming cartridge.

Applicants therefore submit that none of the references of record, neither alone or in combination, disclose nor suggest the invention recited in Claim 43. Also, as Claims 51, 59 and 64 recite substantially similar limitations discussed above, Claims 51, 59 and 64 are believed to be allowable at least for similar reasons as discussed above. Therefore,

¹³ Hideaki, abstract.

Applicants respectfully submit that the limitations defined by pending Claims 43-67 patentably distinguish over the references of record.

III. Conclusion

The Applicants believe that the above provides information required for a favorable petition to make special. Therefore, Applicants respectfully request that this application be advanced out of turn for examination.

Respectfully submitted,

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